1. (Twice Amended) A method of determining a consensus profile for perturbations to a cell type or organism, said method comprising identifying common response motifs among sets of cellular constituents in a plurality of response profiles, each response profile in said plurality of response profiles (i) comprising measurements of a plurality of cellular constituents, and (ii) resulting from a different perturbation to said type of cell or organism, wherein each of said sets of cellular constituents consists of cellular constituents that co-vary under a plurality of perturbations or that are co-regulated, and wherein said common response motifs constitute the consensus profile for said perturbations.

10. (Twice Amended) The method of claim 1, wherein each of the sets of cellular constituents [consist] consists of cellular constituents which are co-regulated.

11. (Twice Amended) The method of claim 1, wherein each of the sets of cellular constituents [consist] consists of cellular constituents which co-vary in the plurality of response profiles.

38. (Twice Amended) A method of determining a consensus profile for perturbations to a cell type or organism, said method comprising identifying common response motifs among sets of genes in a plurality of response profiles, each response profile in said plurality of response profiles (i) comprising measurements of transcript levels for a plurality of genes, and (ii) resulting from a different perturbation to said type of cell or organism, wherein each of said sets of genes consists of genes that co-vary under a plurality of perturbations or that are co-regulated, and wherein said common response motifs constitute the consensus profile for said perturbations.

44. (Twice Amended) A method for grouping measured response profiles in sets which are associated with similar biological effects comprising grouping [sets of] response profiles among a plurality of response profiles into sets, each of said sets of response profiles consisting of response profiles in which the responses of one or more sets of cellular constituents are similar among response profiles in the set [having similar responses of a group of sets of cellular constituents], each response profile in said plurality of response profiles (i) comprising measurements of a plurality of cellular constituents, and (ii) resulting

from a different perturbation, wherein each of said sets of cellular constituents consists of cellular constituents that co-vary under a plurality of perturbations or that are co-regulated.

47. (Amended) The method of claim [45] 46, wherein the clustering algorithm is *hclust*.

58. (Twice Amended) A method for determining the therapeutic efficacy of a drug or drug candidate comprising identifying one or more groups of sets of cellular constituents in one or more response profiles associated with exposure to the drug or drug candidate, each response profile comprising measurements of a plurality of cellular constituents, wherein each of said groups is indicative of a particular therapeutic effect, and wherein the therapeutic effect of the drug or drug candidate is determined to be the particular therapeutic effect indicated by the identified groups, wherein each of said sets of cellular constituents consists of cellular constituents that co-vary under a plurality of perturbations or that are co-regulated.

100. (Amended) A method of grouping sets of perturbations that similarly affect cellular constituents in a cell type or organism[,] among a plurality of perturbations comprising grouping response profiles among a plurality of response profiles in sets, each of said sets of response profiles consisting of response profiles in which the responses of one or more sets of cellular constituents [having similar responses of a group of cellular constituents to said sets of perturbations] are similar among the response profiles in the set, each response profile in said plurality of response profiles (i) comprising measurements of a plurality of cellular constituents, and (ii) resulting from a different perturbation, wherein each of said sets of cellular constituents consists of cellular constituents that co-vary under a plurality of perturbations or that are co-regulated, thereby grouping said sets of perturbations.

Please add new claims as follows:

101. A method for grouping measured response profiles in sets which are associated with similar biological effects comprising grouping response profiles among a plurality of response profiles in sets by cluster analysis of said plurality of response profiles, each of said sets of response profiles consisting of response profiles that form a cluster, each response profile in said plurality of response profiles (i) comprising measurements of a plurality of cellular constituents, and (ii) resulting from a different perturbation.

102. The method of claim 101, wherein the cluster analysis is done by means of a clustering algorithm.

103. The method of claim 102, wherein the clustering algorithm is *hclust*.

104. The method of claim 101, wherein said cluster analysis determines a clustering tree, the sets of response profiles comprising branches of said clustering tree.

105. The method of claim 101, wherein a statistical significance for the sets of response profiles is determined by means of an objective statistical test.

106. The method of claim 105, wherein the objective statistical test comprises:

(a) determining an actual fractional improvement in the cluster analysis of the response profiles;

(b) generating permuted response profiles by means of Monte Carlo randomization of cellular constituent index for each response profile across the measured cellular constituents;

(c) performing cluster analysis on the permuted response profiles;

(d) determining the fractional improvement in the cluster analysis of the permuted response profiles; and

(e) repeating said steps of generating permuted response profiles and performing cluster analysis on the permuted response profiles so that a distribution of fractional improvements is obtained;

wherein the statistical significance is determined by comparing the actual fractional improvement to the distribution of fractional improvements.

REMARKS

Claims 1-88 were pending prior to the filing of the June 30, 2000 Amendment. In the June 30, 2000 Amendment, Applicants have canceled claims 51-57, 65-71, and 79-88 without prejudice to Applicants' right to pursue the subject matter of these canceled claims in related patent applications. In the June 30, 2000 Amendment, Applicants have also amended claims 1, 5, 6, 10-11, 18, 23-27, 29-31, 38-39, 44, 50, 58-59, 62-64, and 72-76 and added new claims 89-100 to more particularly point out the present invention. In the instant